



**LOW POWER
MONOLITHIC ELEMENT
DUAL AC BINARY**

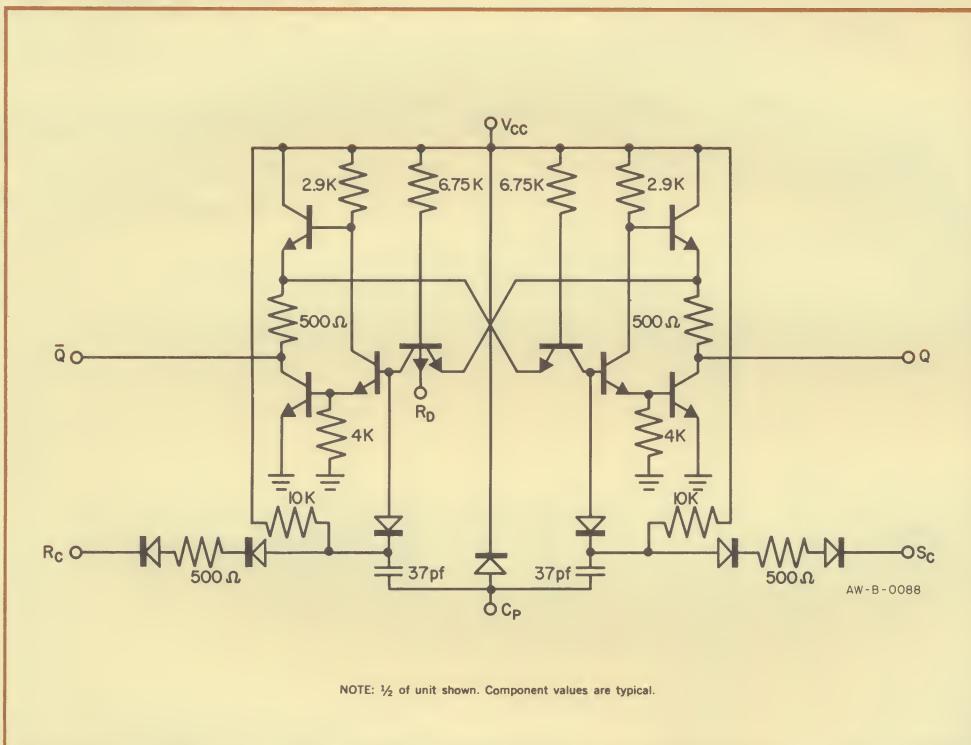
MAY 1967

NE424A

The NE424A is a monolithic silicon integrated circuit containing two RS/T binary elements in a 14-lead dual in-line package. The device is designed to operate in low power digital systems at frequencies up to 10 MHz over the operating temperature range of 0°C to 70°C.

The same planar and epitaxial techniques used in fabricating the SE400J-Series elements are employed in making the NE400A-Series. These elements are tested under the appropriate portion of Signetics established SURE Program (Systematic Uniformity and Reliability Evaluation), as described in Bulletin No. 5001. Acceptance Test Sub-Groups called out in the tabular data refer to selection and test criteria as specified in Table II of SURE Program Bulletin No. 5001.

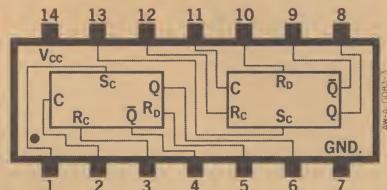
BASIC CIRCUIT SCHEMATIC



ABSOLUTE MAXIMUM RATINGS

INPUT VOLTAGE	6.0V	OPERATING TEMPERATURE	0°C to +70°C
V _{cc}	6.0V	STORAGE TEMPERATURE	-65°C to +150°C
INPUT CURRENT	±10mA	TEMPERATURE	-65°C to +150°C
OUTPUT CURRENT	+30, -10mA	JUNCTION TEMP.	150°C

Maximum ratings are limiting values above which serviceability may be impaired.

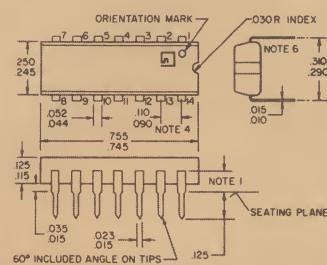


TRUTH TABLE

R _C	S _C	Q _{N+1}
1	0	1
0	1	0
1	1	No Change
0	0	?

$$R_D = 0 \implies Q = 0$$

SIGNETICS A-PACKAGE



- NOTES: (1) Lead spacing shall be measured within this zone.
- (2) Molded Plastic Body.
- (3) Kovar Leads.
- (4) Lead spacing tolerances are non-cumulative.
- (5) Thermal resistace from junction to still air, $\Theta_{J-A} = 0.16^\circ\text{C}/\text{mW}$.
- (6) Leads shown as positioned by Signetics dual in-line package carrier.
- (7) All dimensions of plastic package exclude molding-caused flash.



SIGNETICS CORPORATION • 811 EAST ARQUES AVENUE, SUNNYVALE CALIFORNIA • TEL: (408) 739-7700 • TWX: (910) 339-9220

NE424A

ELECTRICAL CHARACTERISTICS (Notes: 1, 2, 3, 4, 5, 6) $V_{CC}=5.0V \pm 5\%$

ACCEPTANCE TEST SUB-GROUP	CHARACTERISTIC	LIMITS				TEST CONDITIONS						
		MIN.	TYP.	MAX.	UNITS	TEMP.	R_D	CLOCK	S_C	R_C	OUTPUT	NOTES
A-5	"1" OUTPUT VOLTAGE	Q, \bar{Q}	3.2		V	0°C	0.8V				-180 μ A	8, 9
A-3			3.2		V	+25°C	0.8V				-180 μ A	8, 9
A-4			3.2		V	+70°C	0.8V				-180 μ A	8, 9
A-5	"0" OUTPUT VOLTAGE	Q, \bar{Q}		0.35	V	0°C	2.0V				7.0 mA	
A-3				0.35	V	+25°C	2.0V				7.0 mA	
A-4				0.35	V	+70°C	2.0V				7.0 mA	
C-2	"0" INPUT CURRENT	R_D		-1.0	mA	0°C	0.35V					
A-3		R_D		-1.0	mA	+25°C	0.35V					
C-2		R_D		-1.0	mA	+70°C	0.35V					
C-2		S_C, R_C		-0.6	mA	0°C						
A-3		S_C, R_C		-0.6	mA	+25°C						
C-2		S_C, R_C		-0.6	mA	+70°C						
A-3		CLOCK		-500	nA	+25°C		0V	0V	0V		
	TURN-ON DELAY (Figure 1)		45		ns	+25°C					F. O.=7	10
	TURN-OFF DELAY (Figure 1)		45		ns	+25°C					F. O.=7	10
	AVERAGE POWER CONSUMPTION PER BINARY		14		mW	+25°C			Q	\bar{Q}		12
C-2	TOGGLE SPEED		9.0		MHz	+25°C			Q	\bar{Q}		
C-2	OUTPUT FALL TIME (Figure 2)			75	ns	+25°C					AC F. O.=2	11
	INPUT CAPACITANCE	CLOCK		50	pf	+25°C						7
		R_D		3.0	pf	+25°C		2.0V				7
		SC, RC		3.0	pf	+25°C			2.0V	2.0V		7
A-2	INPUT VOLTAGE RATING	R_D	6.0		V	+25°C	-50 μ A					
		CLOCK	5.0		V	+25°C		-10 μ A	0V	0V		
	DC FAN-OUT		7									10

Notes:

- (1) All voltage and capacitance measurements are referenced to the ground terminal. Terminals not specifically referenced are left electrically open.
- (2) All measurements are taken with Pin 7 tied to zero volts.
- (3) Positive current flow is defined as into the terminal referenced.
- (4) Positive NAND Logic definition: "UP" Level = "1", "DOWN" Level = "0".
- (5) Precautionary measures should be taken to ensure current limiting in accordance with maximum ratings should the isolation diodes become forward biased.
- (6) Measurements apply to each binary element independently.
- (7) Capacitance as measured on Bontoon Electronic Corporation Model 75A-S8 Capacitance Bridge or equivalent, $f = 1MHz$, $Vac = 25mVrms$. All pins not specifically

- referenced are tied to guard for capacitance tests.
- (8) The binary Q side is set in a "1" by clocking once with the R_C line high and the S_C line low. For alternate \bar{Q} test S_C is set high, R_C low and the binary clocked once.
- (9) Output leakage current is supplied through a resistor to ground.
- (10) DC fan-out is defined in terms of a Signetics Standard Unit Load, which is an NE480A gate input or an equivalent impedance.
- (11) One AC fan-out is defined as equivalent to one clock pulse input of an NE424A or a 50pf capacitance load.
- (12) Measured at 50 percent duty cycle.

FIGURE 1—CLOCKED MODE TURN ON AND TURN OFF DELAY

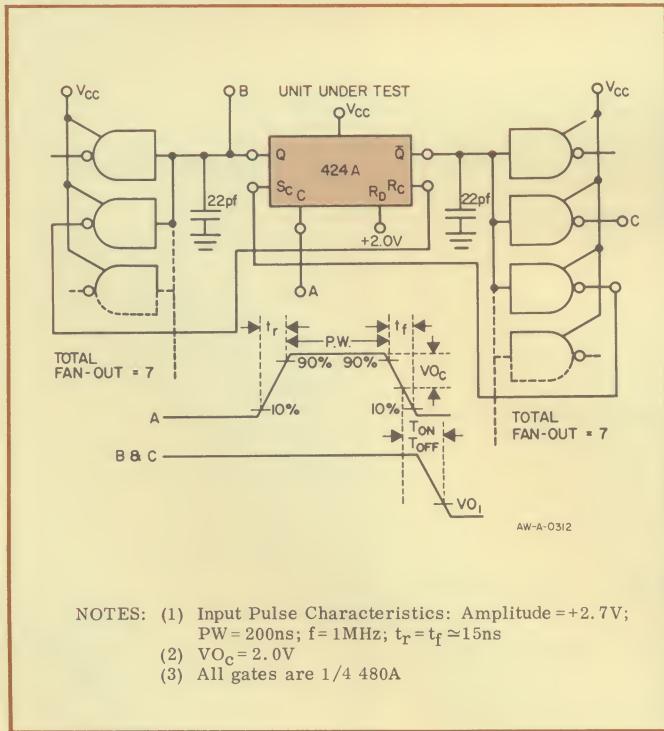
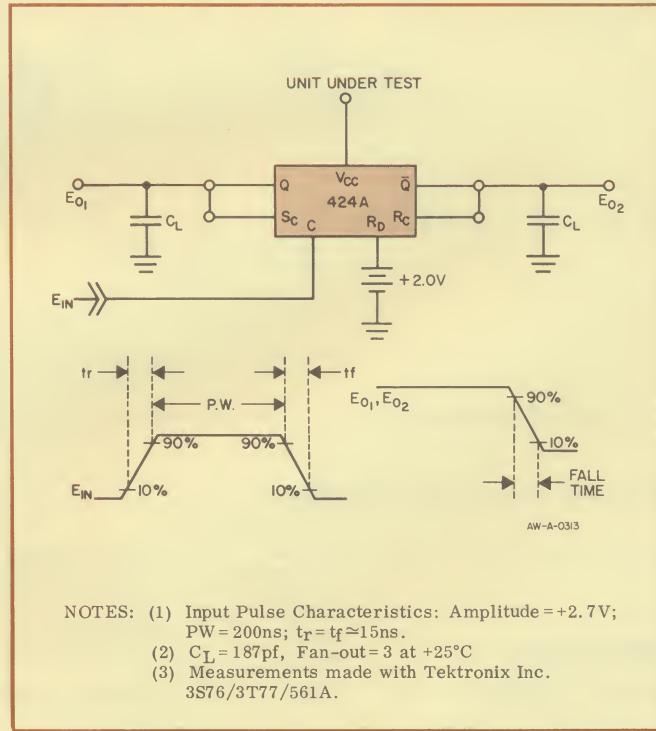
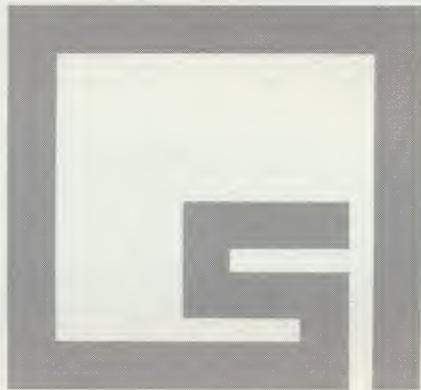


FIGURE 2—OUTPUT FALL TIME CIRCUIT



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SIGNETICS INTEGRATED CIRCUITS



PRICE LIST

Effective May 8, 1967



SIGNETICS CORPORATION
811 EAST ARQUES AVENUE, SUNNYVALE, CALIFORNIA

CATALOG NUMBER	DESCRIPTION	Single Type 100 — 999	Type 100 — 999†	Type 25 — 99†	Type 1 — 24
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I COMPATIBLE DTL ELEMENTS (-55°C to +125°C)					
IN 10-LEAD TO-5					
SE101K	4-Input NAND/NOR Gate*	\$ 11.95	\$ 13.15	\$ 15.00	
SE102K	3-Input NAND/NOR Gate*	11.75	12.90	14.70	
SE105K	6-Input Gate Expander	8.45	9.30	10.50	
SE110K	3-Input High Fan-Out NAND/NOR Gate*	12.45	14.60	16.55	
SE113K	Dual 3-Input High Fan-Out NAND/NOR Gate	12.45	14.60	16.55	
SE115K	Dual 2-Input NAND/NOR Gate	12.45	14.60	16.55	
SE124K	RST Binary Element	13.45	16.15	20.20	
SE150K	2-Input CLOCK/CAPACITIVE Line Driver	12.95	14.90	17.20	
SE157K	Dual 3-Input CLOCK/CAPACITIVE Line Driver	12.95	14.90	17.20	
SE160K	One-Shot Multivibrator*	38.50	46.00	57.50	
SE161K	One-Shot Multivibrator	48.00	57.50	72.00	
SE181K	Quadruple Inverter	13.45	16.15	20.20	
CS700K	Dual 3-2-Input NAND/NOR Gate	12.95	14.90	17.20	
CS701K	Dual 3-2-Input NAND/NOR Gate	12.95	14.90	17.20	
CS704K	RST Binary Element	13.95	16.70	21.00	
CS705K	Dual 3-Input AND Gate	9.75	11.20	13.00	
CS709K	Dual 3-Input Gate Expander	5.55	6.65	8.30	
CS715K	Dual 2-Input CLOCK/CAPACITIVE Line Driver*	13.45	16.10	20.00	
CS716K	Dual 2-Input High Fan-Out NAND/NOR Gate*	12.95	15.60	19.50	

II COMPATIBLE DTL ELEMENTS (0°C to +70°C)					
IN 10-LEAD TO-5					
NE101K	4-Input NAND/NOR Gate*	\$ 4.05	4.25	4.65	5.30
NE102K	3-Input NAND/NOR Gate*	4.05	4.25	4.65	5.30
NE105K	6-Input Gate Expander	3.10	3.25	3.55	4.05
NE110K	3-Input High Fan-Out NAND/NOR Gate*	4.45	4.65	5.10	5.80
NE113K	Dual 3-Input High Fan-Out NAND/NOR Gate	6.40	6.75	7.45	8.45
NE115K	Dual 2-Input NAND/NOR Gate	4.30	4.50	4.95	5.60
NE124K	RST Binary Element	6.60	6.95	7.65	8.70
NE150K	2-Input CLOCK/CAPACITIVE Line Driver	4.55	4.80	5.30	6.00
NE157K	Dual 3-Input CLOCK/CAPACITIVE Line Driver	6.40	6.75	7.45	8.45
NE160K	One-Shot Multivibrator*	18.95	19.95	21.95	24.95
NE161K	One-Shot Multivibrator	N	23.70	24.90	31.20
NE181K	Quadruple Inverter	5.75	6.05	6.90	8.60
NS700K	Dual 3-2-Input NAND/NOR Gate	4.45	4.65	5.10	5.80
NS701K	Dual 3-2-Input NAND/NOR Gate	4.45	4.65	5.10	5.80
NS716K	Dual 2-Input High Fan-Out NAND/NOR Gate*	N	6.40	6.75	8.45

III COMPATIBLE DTL ELEMENTS (-55°C to +125°C)					
IN 10-LEAD FLAT PACK (Also available 0°C to +70°C)**					
SE101G **	4-Input NAND/NOR Gate*	13.45	14.80	16.80	
SE102G **	3-Input NAND/NOR Gate*	13.25	14.55	16.55	
SE105G **	6-Input Gate Expander	9.95	11.00	12.40	
SE110G **	3-Input High Fan-Out NAND/NOR Gate*	13.95	16.00	18.60	
SE115G **	Dual 2-Input NAND/NOR Gate	13.95	16.00	18.60	
SE124G **	RST Binary Element	14.95	18.00	22.40	
SE150G **	2-Input CLOCK/CAPACITIVE Line Driver	14.45	16.60	19.15	
SE160G **	One-Shot Multivibrator*	39.95	48.00	59.90	
CS700G **	Dual 3-2-Input NAND/NOR Gate	14.45	16.60	19.15	
CS701G **	Dual 3-2-Input NAND/NOR Gate	14.45	16.60	19.15	
CS704G	RST Binary Element	15.45	18.50	23.20	
CS705G	Dual 3-Input AND Gate	11.25	12.90	15.00	
CS709G	Dual 3-Input AND Gate	7.05	8.40	10.50	

IV COMPATIBLE DTL ELEMENTS (-55°C to +125°C)					
IN 14-LEAD FLAT PACK					
SE106J	Dual 5-Input Gate Expander	4.85	5.10	5.70	7.30
SE111J	Dual 4-Input High Fan-Out NAND/NOR Gate	10.20	10.80	12.25	15.50
SE112J	Dual 3-Input High Fan-Out NAND/NOR Gate*	10.20	10.80	12.25	15.50
SE116J	Dual 4-Input NAND/NOR Gate*	8.90	9.40	10.70	13.35
SE124J	RST Binary Element	11.90	12.50	14.30	17.85
SE125J	J-K Binary Element	13.20	13.90	15.80	19.80
SE155J	Dual 4-Input CLOCK/CAPACITIVE Line Driver	10.20	10.80	12.25	15.50
SE156J	Dual 4-Input CLOCK/CAPACITIVE Line Driver*	10.20	10.80	12.25	15.50
SE161J	One-Shot Multivibrator	39.95	40.20	48.00	59.90
SE170J	Triple 3-Input NAND/NOR Gate	9.90	10.40	11.90	14.80
SE180J	Quadruple 2-Input NAND/NOR Gate	9.90	10.40	11.90	14.80
CS720J	Quadruple 2-Input NAND/NOR Gate	10.40	10.95	12.50	15.60
CS721J	Triple 3-Input NAND/NOR Gate	10.40	10.95	12.50	15.60
CS727J	Triple 2-Input NAND/NOR Gate*	10.40	10.95	12.50	15.60
CS729J	RST Binary Element	12.40	13.10	14.90	18.60
CS730J	Dual 5-Input NAND/NOR Gate	9.40	9.90	11.25	14.10
CS731J	Quadruple 2-Input Gate Expander	5.35	5.65	6.40	8.00
CS732J	12-Input Gate Expander	5.35	5.65	6.40	8.00

V COMPATIBLE DTL ELEMENTS (0°C to +70°C)					
IN 14-LEAD FLAT PACK					
NE106J	Dual 5-Input Gate Expander	3.40	3.60	4.10	5.10
NE112J	Dual 3-Input High Fan-Out NAND/NOR Gate*	5.10	5.40	6.15	7.65
NE116J	Dual 4-Input NAND/NOR Gate*	4.35	4.60	5.20	6.55
NE124J	RST Binary Element	6.95	7.35	8.35	10.40
NE125J	J-K Binary Element	7.70	8.10	9.25	11.55
NE156J	Dual 4-Input CLOCK/CAPACITIVE LINE Driver*	5.10	5.40	6.15	7.65
NE161J	One-Shot Multivibrator	17.45	18.40	21.00	26.10
NE170J	Triple 3-Input NAND/NOR Gate	4.95	5.20	5.95	7.45
NE180J	Quadruple 2-Input NAND/NOR Gate	4.95	5.20	5.95	7.45

CATALOG NUMBER	DESCRIPTION	Single Type 100 — 999	100 — 999†	25 — 99†	1 — 24
VI COMPATIBLE DTL ELEMENTS (0°C to +70°C) IN 14-LEAD DUAL IN-LINE PACK					
NE106A	Dual 5-Input Gate Expander	\$ 3.10	\$ 3.25	\$ 3.70	\$ 4.50
NE112A	Dual 3-Input High Fan-Out NAND/NOR Gate*	4.60	4.85	5.55	6.85
NE116A	Dual 4-Input NAND/NOR Gate*	3.90	4.15	4.70	5.90
NE124A	RST Binary Element	4.60	4.85	5.55	6.85
NE125A	J-K Binary Element	5.90	6.20	7.10	8.45
NE156A	Dual 4-Input CLOCK/CAPACITIVE Line Driver*	4.60	4.85	5.55	6.85
NE161A	One-Shot Multivibrator	15.70	16.50	19.00	23.40
NE170A	Triple 3-Input NAND/NOR Gate	3.90	4.15	4.70	5.90
NE180A	Quadruple 2-Input NAND/NOR Gate	3.90	4.15	4.70	5.90
VII UTILOGIC ELEMENTS (-20°C to +85°C) IN 10-LEAD TO-5					
SU300K	Dual 3-Input Gate Expander	\$ 5.25	\$ 6.30	\$ 7.35	
SU305K	6-Input AND Gate	5.85	6.95	8.20	
SU306K	Dual 3-Input AND Gate	5.85	6.95	8.20	
SU314K	7-Input NOR Gate	5.85	6.95	8.20	
SU315K	Dual 3-Input NOR Gate	5.85	6.95	8.20	
SU316K	Dual 2-Input NOR Gate*	5.85	6.95	8.20	
SU320K	J-K Binary Element	9.50	11.40	13.30	
SU331K	Dual 2-Input OR Gate*	5.85	6.95	8.20	
SU332K	Dual 3-Input OR Gate	5.85	6.95	8.20	
VIII UTILOGIC ELEMENTS (-20°C to +85°C) IN 10-LEAD FLAT PACK					
SU300G	Dual 3-Input Gate Expander	7.25	8.70	10.15	
SU305G	6-Input AND Gate	7.85	9.35	11.00	
SU306G	Dual 3-Input AND Gate	7.85	9.35	11.00	
SU314G	7-Input NOR Gate	7.85	9.35	11.00	
SU315G	Dual 3-Input NOR Gate	7.85	9.35	11.00	
SU316G	Dual 2-Input NOR Gate*	7.85	9.35	11.00	
SU320G	J-K Binary Element	11.50	13.80	16.10	
SU331G	Dual 2-Input OR Gate*	7.85	9.35	11.00	
SU332G	Dual 3-Input OR Gate	7.85	9.35	11.00	
IX UTILOGIC ELEMENTS (+10°C to +55°C) IN 10-LEAD TO-5					
LU300K	Dual 3-Input Gate Expander	\$ 2.45	2.60	3.15	3.90
LU305K	6-Input AND Gate	2.65	2.80	3.35	4.20
LU306K	Dual 3-Input AND Gate	2.65	2.80	3.35	4.20
LU314K	7-Input NOR Gate	2.65	2.80	3.35	4.20
LU315K	Dual 3-Input NOR Gate	2.65	2.80	3.35	4.20
LU316K	Dual 2-Input NOR Gate*	2.65	2.80	3.35	4.20
LU320K	J-K Binary Element	3.55	3.75	4.50	5.55
LU331K	Dual 2-Input OR Gate*	2.65	2.80	3.35	4.20
LU332K	Dual 3-Input OR Gate	2.65	2.80	3.35	4.20
NE855K	Dual 4-Input NAND Power Gate	5.70	6.00	7.20	9.00
X COMPATIBLE LOW-POWER ELEMENTS (-55°C to +125°C) IN 14-LEAD FLAT PACK					
SE416J	Dual 4-Input NAND/NOR Gate*	14.95	15.80	17.95	22.50
SE417J	Dual 3-Input NAND/NOR Gate*	14.95	15.80	17.95	22.50
SE424J	Dual AC Binary Element	20.00	21.00	24.00	30.00
SE440J	Dual Exclusive-OR Gate	15.45	16.25	18.55	23.20
SE455J	Dual 4-Input BUFFER/DRIVER	15.45	16.25	18.55	23.20
SE480J	Quadruple 2-Input NAND/NOR Gate	15.45	16.25	18.55	23.20
XI COMPATIBLE LOW-POWER ELEMENTS (0°C to +70°C) IN 14-LEAD FLAT PACK					
NE416J	Dual 4-Input NAND/NOR Gate*	7.50	7.90	9.00	11.25
NE417J	Dual 3-Input NAND/NOR Gate*	7.50	7.90	9.00	11.25
NE424J	Dual AC Binary Element	10.00	10.50	12.00	15.00
NE440J	Dual Exclusive-OR Gate	8.00	8.40	9.60	12.00
NE455J	Dual 4-Input BUFFER/DRIVER	8.00	8.40	9.60	12.00
NE480J	Quadruple 2-Input NAND/NOR Gate	8.00	8.40	9.60	12.00
XII COMPATIBLE LOW-POWER ELEMENTS (0°C to +70°C) IN 14-LEAD DUAL IN-LINE PACK					
NE416A	Dual 4-Input NAND/NOR Gate*	4.20	4.40	5.35	6.60
NE417A	Dual 3-Input NAND/NOR Gate*	4.20	4.40	5.35	6.60
NE424A	Dual AC Binary Element	8.00	8.40	9.60	12.00
NE440A	Dual Exclusive-OR Gate	4.20	4.40	5.35	6.60
NE455A	Dual 4-Input BUFFER/DRIVER	4.20	4.40	5.35	6.60
NE480A	Quadruple 2-Input NAND/NOR Gate	4.20	4.40	5.35	6.60
XIII COMPATIBLE LOW-POWER ELEMENTS (+15°C to +55°C) IN 14-LEAD DUAL IN-LINE PACK					
SP416A	Dual 4-Input NAND/NOR Gate*	↓	1.40	1.45	1.75
SP417A	Dual 3-Input NAND/NOR Gate*	↓	1.40	1.45	1.75
SP424A	Dual AC Binary Element	↓	4.45	4.70	4.95
SP440A	Dual Exclusive-OR Gate	↓	1.50	1.60	1.70
SP455A	Dual 4-Input BUFFER/DRIVER	↓	1.50	1.60	1.70
SP480A	Quadruple 2-Input NAND/NOR Gate	↓	1.40	1.45	1.50

CATALOG NUMBER	DESCRIPTION	1000 — 4999†	100 — 999	Single Type	100 — 999†	25 — 99†	1 — 24
XIV COMPATIBLE LOW-POWER ELEMENTS (0°C to +70°C)							
IN 14-LEAD DUAL IN-LINE PACK							
ST416A	Dual 4-Input NAND/NOR Gate*	†	\$ 1.45	\$ 1.50	\$ 1.55	\$ 1.80	\$ 2.25
ST417A	Dual 3-Input NAND/NOR Gate*	†	1.45	1.50	1.55	1.80	2.25
ST424A	Dual AC Binary Element	†	4.50	4.75	5.00	5.70	7.10
ST440A	Dual Exclusive-OR Gate	†	1.55	1.65	1.75	2.00	2.50
ST455A	Dual 4-Input BUFFER/DRIVER	†	1.55	1.65	1.75	2.00	2.50
ST480A	Quadruple 2-Input NAND/NOR Gate	†	1.45	1.50	1.55	1.80	2.25
XV LINEAR CIRCUITS (-55°C to +125°C)							
IN 10-LEAD TO-5							
SE500K	Gated Sense Amplifier		15.00	15.75	18.00	22.50	
SE501K	Video Amplifier	†	15.60	16.40	18.70	23.40	
SE504K	Gated Sense Amplifier		15.00	15.75	18.00	22.50	
SE505K	General Purpose Differential Amplifier		15.00	15.75	18.00	22.50	
SE506K	Differential Operational Amplifier		35.00	36.75	42.00	52.50	
SE518K	Analog Comparator	†	11.25	11.80	13.50	16.90	
XVI LINEAR CIRCUITS (-55°C to +125°C)							
IN 10-LEAD FLAT PACK							
SE500G	Gated Sense Amplifier		17.00	17.85	20.50	25.50	
SE501G	Video Amplifier	†	17.60	18.50	21.10	26.40	
SE504G	Gated Sense Amplifier		17.00	17.85	20.50	25.50	
SE505G	General Purpose Differential Amplifier		17.00	17.85	20.50	25.50	
SE506G	Differential Operational Amplifier		37.00	38.75	44.00	54.50	
SE518G	Analog Comparator	†	13.25	13.90	15.90	19.90	
XVII LINEAR CIRCUITS (0°C to +70°C)							
IN 10-LEAD TO-5							
NE500K	Gated Sense Amplifier		7.50	7.90	9.00	11.25	
NE501K	Video Amplifier	†	6.00	6.30	7.20	9.00	
NE504K	Gated Sense Amplifier		7.50	7.90	9.00	11.25	
NE505K	General Purpose Differential Amplifier		7.50	7.90	9.00	11.25	
NE506K	Differential Operational Amplifier		17.50	18.50	21.00	26.25	
NE518K	Analog Comparator	†	4.75	5.00	5.75	7.15	
XVIII COMPATIBLE DTL ELEMENTS (+15°C to +55°C)							
IN 14-LEAD DUAL IN-LINE PACK							
SP616A	Dual 4-Input NAND/NOR Gate*		\$ 1.10	1.15	1.20	1.40	1.75
SP620A	J-K Binary Element		2.20	2.30	2.40	2.75	3.45
SP629A	RST Binary Element		2.20	2.30	2.40	2.75	3.45
SP631A	Quadruple 2-Input Gate Expander		.95	1.00	1.05	1.20	1.50
SP659A	Dual 4-Input CLOCK/CAPACITIVE Driver*		1.20	1.30	1.40	1.55	1.95
SP670A	Triple 3-Input NAND/NOR Gate		1.20	1.30	1.40	1.55	1.95
SP680A	Quadruple 2-Input NAND/NOR Gate		1.20	1.30	1.40	1.55	1.95
XIX COMPATIBLE DTL ELEMENTS (0°C to +70°C)							
IN 14-LEAD DUAL IN-LINE PACK							
ST616A	Dual 4-Input NAND/NOR Gate*		1.15	1.20	1.25	1.45	1.80
ST620A	J-K Binary Element		2.25	2.35	2.50	2.80	3.50
ST629A	RST Binary Element		2.25	2.35	2.50	2.80	3.50
ST631A	Quadruple 2-Input Gate Expander		1.00	1.05	1.10	1.25	1.55
ST659A	Dual 4-Input CLOCK/CAPACITIVE Driver*		1.25	1.35	1.45	1.60	2.00
ST670A	Triple 3-Input NAND/NOR Gate		1.25	1.35	1.45	1.60	2.00
ST680A	Quadruple 2-Input NAND/NOR Gate		1.25	1.35	1.45	1.60	2.00
XX COMPATIBLE TTL ELEMENTS (-55°C to +125°C)							
IN 14-LEAD FLAT PACK							
SE806J	Dual 4-Input Gate Expander		7.00	7.50	8.40	10.40	
SE808J	Single 8-Input NAND Gate		8.90	9.40	10.70	13.35	
SE816J	Dual 4-Input NAND Gate		8.90	9.40	10.70	13.35	
SE825J	J-K Binary Element		13.20	13.90	15.80	19.80	
SE826J	Dual AC Binary Element		20.00	21.00	24.00	30.00	
SE840J	Dual Exclusive-OR Gate*		9.60	10.20	11.40	14.20	
SE855J	Dual 4-Input Power Gate		10.20	10.80	12.25	15.50	
SE870J	Triple 3-Input NAND Gate		9.90	10.40	11.90	14.80	
SE880J	Quadruple 2-Input NAND Gate		9.90	10.40	11.90	14.80	

MINIMUM CHARGE ON FACTORY ORDERS, \$25.00. YOUR LOCAL DISTRIBUTOR, LISTED ON THE BACK PAGE, CAN PROVIDE FASTEST DELIVERY ON THE FOLLOWING QUANTITIES AND TYPES: (1) UP TO 4999 PIECES FOR ALL SP/ST SERIES PRODUCTS, (2) UP TO 2499 PIECES FOR ITEMS WITH LU PREFIXES, (3) UP TO 999 PIECES OF ALL OTHER TYPES.

REFERENCE N New product.
 SYMBOLS: † Price decrease effective on date of this list.
 † Elements within any single group on this list may be mixed on a single order to obtain the maximum applicable quantity discount. Mixprivileges do not apply on orders calling for elements from more than one group.
 * Element incorporates fan-in expansion provision.
 ** Functional equivalent of this element guaranteed for 0°C to +70°C operation is available. Query nearest Signetics Representative or Distributor for current price and delivery information.

Prices: These prices supersede all previous prices and are subject to change without notice.
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CATALOG NUMBER	DESCRIPTION	Single Type 100 — 999	100 — 999†	25 — 99†	1 — 24
XXI COMPATIBLE TTL ELEMENTS (0°C to +70°C) IN 14-LEAD FLAT PACK					
NE806J	Dual 4-Input Gate Expander	\$ 3.50	\$ 3.80	\$ 4.20	\$ 5.20
NE808J	Single 8-Input NAND Gate	4.35	4.60	5.20	6.55
NE816J	Dual 4-Input NAND Gate	4.35	4.60	5.20	6.55
NE825J	J-K Binary Element	7.70	8.10	9.25	11.55
NE826J	Dual AC Binary Element	10.00	10.50	12.00	15.00
NE840J	Dual Exclusive-OR Gate*	4.80	5.10	5.70	7.10
NE855J	Dual 4-Input Power Gate	5.10	5.40	6.15	7.65
NE870J	Triple 3-Input NAND Gate	4.95	5.20	5.95	7.45
NE880J	Quadruple 2-Input NAND Gate	4.95	5.20	5.95	7.45
XXII COMPATIBLE TTL ELEMENTS (+15°C to +55°C) IN 14-LEAD DUAL IN-LINE PACK					
SP806A	Dual 4-Input Gate Expander	1.10	1.15	1.20	1.85
SP808A	Single 8-Input NAND Gate	1.40	1.45	1.50	2.20
SP816A	Dual 4-Input NAND Gate	1.40	1.45	1.50	2.20
SP825A	J-K Binary Element	2.45	2.60	2.70	4.00
SP826A	Dual AC Binary Element	4.45	4.70	4.95	7.05
SP828A	Dual "D" Flip-Flop	3.45	3.60	3.80	5.60
SP840A	Dual Exclusive-OR Gate*	1.50	1.60	1.70	2.45
SP855A	Dual 4-Input Power Gate	1.50	1.60	1.70	2.45
SP870A	Triple 3-Input NAND Gate	1.40	1.45	1.50	2.20
SP880A	Quadruple 2-Input NAND Gate	1.40	1.45	1.50	2.20
XXIII COMPATIBLE TTL ELEMENTS (0°C to +70°C) IN 14-LEAD DUAL IN-LINE PACK					
ST806A	Dual 4-Input Gate Expander	1.10	1.15	1.20	1.85
ST808A	Single 8-Input NAND Gate	1.45	1.50	1.55	2.25
ST816A	Dual 4-Input NAND Gate	1.45	1.50	1.55	2.25
ST825A	J-K Binary Element	2.50	2.65	2.75	4.05
ST826A	Dual AC Binary Element	4.50	4.75	5.00	7.10
ST828A	Dual "D" Flip-Flop	3.50	3.65	3.85	5.65
ST840A	Dual Exclusive-OR Gate*	1.55	1.65	1.75	2.50
ST855A	Dual 4-Input Power Gate	1.55	1.65	1.75	2.50
ST870A	Triple 3-Input NAND Gate	1.45	1.50	1.55	2.25
ST880A	Quadruple 2-Input NAND Gate	1.45	1.50	1.55	2.25
XXIV COMPATIBLE TTL ELEMENTS (0°C to +70°C) IN 14-LEAD DUAL IN-LINE PACK					
NE806A	Dual 4-Input Gate Expander	3.35	3.50	4.20	5.25
NE808A	Single 8-Input NAND Gate	3.65	3.85	4.60	5.75
NE816A	Dual 4-Input NAND Gate	3.65	3.85	4.60	5.75
NE825A	J-K Binary Element	5.70	6.00	7.20	9.00
NE826A	Dual AC Binary Element	10.00	10.50	12.00	15.00
NE840A	Dual Exclusive-OR Gate*	4.20	4.40	5.35	6.60
NE855A	Dual 4-Input Power Gate	4.20	4.40	5.35	6.60
NE870A	Triple 3-Input NAND Gate	4.20	4.40	5.35	6.60
NE880A	Quadruple 2-Input NAND Gate	4.20	4.40	5.35	6.60
XXV COMPATIBLE MONOLITHIC SUB-SYSTEMS (0°C to +70°C) IN 14-LEAD DUAL IN-LINE PACK					
S1280A	Decade Counter Unit	14.40	16.00	19.20	24.00
S1281A	Binary Counter Unit	14.40	16.00	19.20	24.00
XXVI COMPATIBLE TTL HIGH-SPEED LOW-POWER ELEMENTS (-55°C to +125°C) IN 14-LEAD FLAT PACK					
S8280J	Decade Counter	32.70	34.30	39.30	49.00
S8281J	Binary Counter	32.70	34.30	39.30	49.00
S8416J	Dual 4-Input NAND/NOR Gate*	4.40	4.60	5.30	6.60
S8417J	Dual 3-Input NAND/NOR Gate*	4.40	4.60	5.30	6.60
S8424J	Dual AC Binary Element	8.75	9.20	10.50	13.10
S8440J	Dual Exclusive-OR Gate	4.40	4.60	5.30	6.60
S8455J	Dual 4-Input BUFFER/DRIVER	5.35	5.60	6.40	8.00
S8480J	Quadruple 2-Input NAND/NOR Gate	4.40	4.60	5.30	6.60
S8806J	Dual 4-Input Gate Expander	4.00	4.20	4.80	6.00
S8808J	Single 8-Input NAND Gate	4.40	4.60	5.30	6.60
S8816J	Dual 4-Input NAND Gate	4.40	4.60	5.30	6.60
S8825J	J-K Binary Element	7.05	7.30	8.45	10.60
S8826J	Dual AC Binary Element	8.75	9.20	10.50	13.10
S8828J	Dual "D" Flip-Flop	8.40	8.80	10.30	12.90
S8840J	Dual Exclusive-OR Gate*	4.40	4.60	5.30	6.60
S8855J	Dual 4-Input Power Gate	4.85	5.10	5.80	7.30
S8870J	Triple 3-Input NAND Gate	4.40	4.60	5.30	6.60
S8880J	Quadruple 2-Input NAND Gate	4.40	4.60	5.30	6.60
XXVII DUMMY INTEGRATED CIRCUIT PACKAGES (Minimum quantity of 50 pieces)					
50 Up					
J (TO-88)	14-Lead Dummy Flat Package	\$.25			
G (TO-91)	10-Lead Dummy Flat Package	.25			
K (TO-100)	10-Lead Dummy Package	.15			
A (TO-116)	14-Lead Dummy Dual In-Line Package	.15			

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